DECISION
AND
FINDING OF NO SIGNIFICANT IMPACT
FOR
PREDATOR DAMAGE MANAGEMENT
ON
NONFEDERAL AND [redacted]
IN THE
ARIZONA ANIMAL DAMAGE CONTROL PROGRAM

INTRODUCTION and PROPOSED ACTION:

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (APHIS), Animal Damage Control (ADC) program receives requests to conduct wildlife damage management to protect livestock, crops, property, wildlife, and human health and safety within the state of Arizona. ADC prepared an Environmental Assessment (EA) to analyze the environmental impacts of continuing the current program that provides assistance in response to such requests. The scope of the EA includes ADC's predator damage management (PDM) action on private land, state land, local government owned land (county or city property), and [redacted] land in Arizona. This decision and Finding of No Significant Impact (FONSI) are based on the analysis in this EA.

Individual actions on lands encompassed by this decision could each be categorically excluded under the APHIS Implementing Regulations for compliance with the national Environmental Policy Act (NEPA) (7 CFR 372.5(c)). This decision covers ADC's plans for future actions within the lands described in the EA. The purpose of the proposed plan of action is to alleviate damage caused by predators on the above types of land status areas. The needs for the program, as identified in the EA, are related to the fact that livestock, crops, certain types of property, wildlife, and at times, public health or safety may be adversely affected by predators. ADC PDM on federal lands (Forest Service and Bureau of Land Management) was not included in the scope of the EA because such actions on those areas are currently covered by NEPA documentation specific to individual National Forests or BLM districts. The analysis in the EA, however, encompasses statewide impacts of ADC PDM activities, which, for the issues analyzed, includes potential impacts on all land status areas, including Federal land.

The Arizona ADC program has agreements to conduct predator damage management on about 9.1 million acres, which is 12.4% of the area of the State, but only conducts wildlife damage management on about 2.1 million acres or 2.9% of the area annually. Under the current program, ADC could be asked to provide this service on more properties in the state in the future; however, it is anticipated that control activities would be conducted in no more than 5% of the State's land area.

ADC is the Federal agency authorized to manage damage by predators and other wildlife. ADC cooperates with the [redacted] to minimize animal damage. The AGFD has the primary responsibility to manage all protected and classified wildlife in Arizona, except Federally listed threatened and endangered (T&E) species. Arizona Game & Fish manages mountain lion and black bear depredations according to ARS Title 17-239 & 17-302. The ADA is the state agency with responsibility for managing depredations to agricultural resources caused by predatory animals, rodents, and related species. [redacted] grants [redacted] this management authority and directs the agency to cooperate with ADC. ADC's authority comes from the Animal Damage Control Act of March 2, 1931, as amended (46 Stat. 1486; 7 U.S.C. 426-426c), and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988.

Memoranda of Understanding (MOUs) signed between APHIS-ADC, [redacted] clearly outline the responsibility, technical expertise and coordination between agencies. All wildlife damage management will be conducted in a manner consistent with the Endangered Species Act of 1973 and the Section 7 Consultation completed

with the U.S. Fish and Wildlife Service, as well as any further consultations that occur.

The EA analysis provides a comparison of four alternatives for addressing predator damage management on the subject land status areas in the State. The analysis and supporting documentation are available for review at the U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Animal Damage Control office at 1960 West North Lane, Phoenix, Arizona 85021.

Decision and Rationale

I have carefully reviewed the EA and believe that the issues identified are best addressed by selecting Alternative 1 (the Proposed Action) which continues the current program.

Alternative 1 provides ADC the best opportunity to meet program goals for responding to requests for service and for minimizing losses while at the same time minimizing environmental impacts. Alternative 1 best allows ADC to meet its obligations to the [redacted], American Indian Tribes, and to cooperating cities, counties and individuals within the State. As a part of this decision, the Arizona ADC program will provide all cooperators and cooperating Federal, State, and local agencies with information on nonlethal management techniques proven to be effective for reducing predation within one year of the decision. New cooperators or cooperating agencies will be provided this information within three weeks of signing a cooperative agreement.

Monitoring

The Arizona ADC program in consultation with the AGFD will compare the target and nontarget species killed in the State with the other kill to determine if the total take is within allowable harvest levels. Should allowable harvest levels be exceeded, ADC will consult with AGFD to determine if additional mitigations are necessary.

Public Involvement

The EA and this Record of Decision (ROD) were made available for public review and notices of availability were published in major newspapers in the State in accordance with APHIS and Council on Environmental Quality regulations. Most of the public comments received did not raise substantive issues requiring further analysis than that contained in the EA. Other comments received related to issues that have been adequately addressed in the ADC programmatic EIS (USDA 1994) and readers are referred to that document for more comprehensive reviews. Nevertheless, some comments regarding the EA indicated areas merited further clarification as follows. Cited references are included in Appendix A of the EA:

1. **The EA fails to demonstrate need for PDM for livestock protection on nonfederal and [redacted] lands.**

   Chapter 1 has been revised to more clearly show livestock loss data specific to nonfederal and [redacted] lands.

2.. **The EA fails to provide population estimates for nonfederal and [redacted] lands and fails to fully assess the cumulative impacts of lethal activities directed at predator populations.**

   As stated in section 4.2.1.1 of the EA, land ownership status in Arizona is intermingled, and predator populations do not recognize land status boundaries. ADC chose to define populations on a statewide basis in accordance with the way they are defined by the Arizona Game and Fish Department which is the primary state agency with management responsibility for resident wildlife species in the State. Therefore, we believe statewide population estimates are appropriate for purposes of analysis. The EA addresses cumulative impacts on each species by considering all known human caused mortality which includes private harvest as well as ADC lethal take on *all* land status areas within the state. Because private harvest figures are not available by land status, and because populations do not recognize land status boundaries, it is appropriate to consider impacts on populations regardless of land status in order to analyze cumulative impacts. The cumulative impacts analysis clearly shows that ADC PDM actions have low impacts on populations within the state.

3. **Does the value of livestock saved exceed the cost of providing PDM services?**

As stated in section 1.3.2.2 of the EA, it is not possible to accurately determine the number of livestock saved from predators by ADC since that number represents losses that never occurred. Using the best information available, the ADC programmatic EIS concluded that benefits, in terms of avoided sheep and lamb losses plus price benefits to consumers, are 2.4 times the cost of providing ADC PDM services for sheep protection in the 16 western states (USDA 1994, p. 4-109). That analysis did not address the value of calf protection which is a substantial component of ADC PDM services in the Arizona program.

Connolly (1981) examined the issue of cost effectiveness of federal predator control programs and concluded that public policy decisions have been made to steer the program away from being as cost effective as possible. This is because of the elimination of control methods believed to be effective but less environmentally preferable such as toxic baits. Thus, the increased costs of implementing the remaining available methods were to achieve other public benefits besides livestock protection and could be viewed as mitigation for the loss of effectiveness in reducing damage. The ADC EIS, Appendix L, p. 32 stated:

> Cost effectiveness is not, nor should it be, the primary goal of the APHIS ADC program. Additional constraints, such as environmental protection, land management goals, and others, are considered whenever a request for assistance is received. These constraints increase the cost of the program while not necessarily increasing its effectiveness, yet they are a vital part of the APHIS ADC program.

CEQ regulations (40 CFR 1502.23) do not require a formal, monetized cost-benefit analysis to comply with NEPA. Despite this fact and the general idea that government PDM is not necessarily intended to be cost effective, the following discussion addresses the question of costs vs. benefits for the current PDM program on nonfederal and [redacted] lands in Arizona:

Sheep and Lamb Losses. The EA cited scientific studies revealing that in the absence of PDM, losses of adult sheep and lambs to predators can be as high as 8.4% and 29.3%, respectively (Henne 1977, Munoz 1977, O'Gara et al. 1983) whereas in studies with PDM, losses were about 0.5 and 4.3%, respectively (USDI 1979). In analyzing the value of sheep and losses avoided by PDM, USDA (1994) used an unweighted average rate of loss in studies without PDM to be 4.5% for sheep and 17% for lambs.

Cattle and Calf Losses. No studies of cattle and calf losses in the absence of PDM have been conducted. Survey data discussed in USDI (1978) showed that 85% of cattle producers in the southwest U.S. had *no* losses of calves to coyotes, that 13% had coyote predation losses of up to 5% of calves born alive, and that 2% had losses to coyotes greater than 5%. Those data indicate a minority of cattle producers have most of the coyote predation problems that are experienced by cattle producers as a whole. It is within reason to assume that producers who experience higher losses are more likely to become ADC cooperators; thus, it is reasonable to predict that losses on cooperating cattle ranches would be as great as the higher loss producers in the data shown by USDI (1978). Therefore, we predict that cooperating cattle ranches would have an average of around 5% losses to coyotes on cooperating ranches in the absence of PDM.

Value of Avoided Losses and Costs vs. Estimated Benefits. Table "A" that follows shows the estimated losses of sheep, lambs, and calves that were avoided by cooperating farms and ranches because of ADC PDM services. It shows the estimated value of those resources that were saved by PDM was $1.36 million in FY 93 and $1.52 million in FY 94. Compared to the cost of providing the service, it appears that the value of livestock saved exceeded the cost of providing service by a factor of 4.2 in 1993 and by 4.3 in 1994.

Table A. Estimated benefits (in terms of livestock losses avoided) vs. costs for ADC Predator Damage Management (PDM) on nonfederal and [redacted] lands in Arizona in 1993 and 1994. Data on resources protected

and lost were from EA. Per head values were from ADC MIS data. Costs were estimated using data from ADC Annual Reports for 1993 and 1994. Percent loss estimates for sheep and lambs without PDM were taken from the ADC FEIS (USDA 1994); percent loss estimates for calves without PDM were estimated using an analysis of survey data from USDI (1978).

Year	Resource	# Protected by ADC	% Lost to Predation w/ PDM	Predicted % Lost to Predation w/o PDM	# Losses Avoided by PDM	$ Value per Head	Value of Avoided Losses	Cost of Providing PDM Service	Benefit-Cost Ratio
1993	Lambs	68,689	1.05%	17.00%	10,956	$90	$986,040		
	Sheep	16,305	0.42%	4.50%	665	$110	$73,150		
	Calves	24,336	1.66%	5.00%	812	$374	$303,688		
	TOTAL	NA	NA	NA	NA	NA	$1,362,878	$323,000	4.2:1
1994	Lambs	12,805	0.70%	17.00%	2,087	$90	$187,830		
	Sheep	4,040	0.25%	4.50%	172	$110	$18,920		
	Calves	51,383	0.63%	5.00%	2,245	$586	$1,315,570		
	TOTAL	NA	NA	NA	NA	NA	$1,522,320	$355,000	4.3:1

4. **"Although current ADC activities may not reduce coyote populations, at least over broad areas, the cumulative effect of control may be a decrease in the stability of the populations... and an increase in the overall population size. Given this information, it appears that coyote control may indeed be counterproductive."**

Coyote populations in Arizona are typically subjected to much higher private kill levels than those that result from ADC activities. The EA, p. 4-2 showed that ADC's coyote kill for the entire state was only 7% or less of the total harvest (EA, p. 4-2). Therefore, ADC kill in Arizona is minor in relation to the private kill which means ADC actions have little effect on the *status quo* of the overall coyote population of the state. Furthermore, wildlife populations in general are limited by the availability of food and by social tolerances. The removal of coyotes from a population would mean more food available per coyote and less social stress to those remaining, thus resulting in higher reproductive success as shown by Connolly and Longhurst (1975). However, this does not mean the population would *increase* to a level greater than what would normally occur without any mortality by humans. It only means the population would *return* fairly rapidly to precontrol levels. A number of studies (cited in the EA), as well as professional experience, indicate that PDM can keep coyote numbers low enough in localized areas for a long enough period each season to allow young livestock or ungulate fawns to grow past the point of high susceptibility to coyote predation, even if the population returns to precontrol levels within the same year. The Government Accounting Office (GAO) supported this conclusion in a 1990 report stating that "according to available research, localized lethal controls have served their purpose in reducing predator damage" (GAO 1990).

Major Issues

The EA describes the alternatives considered and evaluated using the identified issues. The following issues were identified as important to the scope of the analysis (40 CFR 1508.25).

- Effects on Target Predator Species Populations

- Effects on Nontarget Species populations, including Threatened and Endangered Species
- Effects of Coyote Removal on Prey Populations
- Humaneness of Control Techniques

Six other issues were considered but rationales were presented for not analyzing them in detail. Those issues were:

- ADC's impact on biodiversity
- Livestock losses are a tax "write off".
- Threshold of loss and livestock losses are a cost of doing business.
- No wildlife damage management at taxpayer expense; wildlife damage management should be fee based.
- The indiscriminate killing of coyotes often disturbs stable coyote populations, thus promoting opportunistic animals who are far more likely to kill livestock.
- American Indian and Cultural Resource Concerns.

Alternatives That Were Fully Evaluated

Four alternatives were analyzed in detail and four additional alternatives were considered, but not analyzed in detail. A detailed discussion of the effects of the alternatives on the issues is described in the EA; below is a summary of the alternatives and issues.

Alternative 1. Continuation of the current Arizona PDM Program on nonfederal and [redacted] lands (No Action) . The No Action Alternative was analyzed and used as a baseline for comparing the effects of the other Alternatives as required by 40 CFR 1502.14(d). Alternative 1 would allow ADC to meet its mission. The analysis of impacts that Alternative 1 would have was low for target species, predator/prey relationships, nontarget and T&E species, and provides a balanced approach to addressing the humaneness issue.

Alternative 2. No Federal ADC PDM - This Alternative would terminate the Federal predator damage management program on nonfederal and [redacted] lands in Arizona. This alternative was not selected because it would not allow ADC to meet its statutory responsibility for providing assistance, nor would it optimize the chances for minimizing losses. Impacts on target, nontarget, T&E species populations, prey populations, and humaneness could be lower than, greater than, or the same as Alternative 1 depending on the level of private control efforts and whether illegal pesticide use occurred.

Alternative 3. Technical Assistance Only - Under this alternative, ADC would not conduct any direct operational PDM activities on nonfederal and [redacted] lands in the State. If requested, affected producers would be provided with technical assistance information only. Alternative 3 was not selected, because it would not allow the best chance for effective resolution of predator damage problems. The potential impacts on target, nontarget, and T&E species populations, prey species populations, and humaneness would likely be similar to those of Alternative 2 and greater than Alternative 1.

Alternative 4. Nonlethal Control Required Prior to Lethal Control was not selected, because no standard exists to determine diligence in applying nonlethal methods, nor are there any standards to determine how many nonlethal applications are necessary before initiation of lethal controls, and ADC is charged by law to minimize damage caused by wildlife. This alternative would not allow PDM for wildlife protection. The impacts of this alternative could be greater than the proposed action depending on the level of private control efforts and whether illegal pesticide use occurred.

The alternatives considered but not analyzed in detail are the following:

Compensation for Predator Damage Losses. The Compensation Alternative would direct ADC efforts and resources toward the verification of livestock and crop losses from predators, and providing monetary compensation to the producers. ADC services would not include any direct damage management nor would technical assistance or nonlethal methods be provided. This alternative was eliminated from detailed analysis in ADC's Final EIS because of many disadvantages which are also cited in the EA and because Congress has not appropriated funds to compensate for predation or other wildlife damage to agricultural products. This alternative would not be practical for protection of wildlife resources from predation or for resolving human health and safety concerns.

Bounties. This alternative would establish a system of payment to individuals for killing target predators. It was not considered in detail because of concerns that have been adequately described in the EA.

Eradication and Long Term Population Suppression. This alternative would establish long term intensive programs for eradicating or suppressing target predator populations over broad areas. It was eliminated from detailed analysis because eradication of native predator species is not supported by ADC, AGFD, ADA or Indian tribes. Also, achieving eradication or long term suppression would be difficult or impossible to achieve under current constraints of technology, funding, and state restrictions on methods.

The Humane Society of the United States (HSUS) Alternative. This alternative (described fully in the EA) was not considered in detail because its primary element was similar to Alternative 4, and for other reasons stated completely in the EA.

Decision

I have carefully reviewed the EA and believe the issues identified in the EA are best addressed by selecting Alternative 1. Alternative 1 provides the best range of damage management methods considered practical and effective to accomplish ADC's Congressionally authorized activities. While Alternative 1 does not require nonlethal methods to be used by producers, ADC will continue to encourage the use of practical and effective nonlethal methods by livestock producers. By this decision, I am directing the Arizona ADC Program to implement Alternative 1.

Finding of No Significant Impact

The EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment because of this proposed action and that these actions do not constitute a major Federal action. I agree with this conclusion and, therefore, determine that an Environmental Impact Statement will not be prepared. This determination is based on the following factors:

1. Predator damage management, as conducted on nonfederal and [redacted] lands in Arizona is not regional or national in scope.

2. Based on the analysis documented in the EA, the impacts of the predator damage management program will not significantly affect the human environment.

3. The proposed action will not have an impact on unique characteristics of the areas such as historical or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecological critical areas.

4. The proposed action will not significantly affect public health and safety. No accidents associated with ADC predator damage management are known to have occurred in Arizona.

5. The effects on the quality of the human environment are not highly controversial. Although there is opposition to predator damage management, this action is not controversial in relation to size, nature, or effects.

6. Mitigation measures adopted and/or described as part of the proposed action minimize risks to the public and prevent adverse effects on the human environment and reduce uncertainty and risks.

7. The proposed action does not establish a precedent for future actions. This action would not set a precedent for future predator damage management that may be implemented or planned within the state.

8. The number of animals taken (both target and nontarget) by ADC annually is small in comparison to total populations. The amount of land area on which PDM services are conducted is also minor. Adverse effects on wildlife or wildlife habitats would be minimal.

9. No significant cumulative effects were identified by this assessment for this or other anticipated actions to be implemented or planned within the area.

10. Predator damage management would not affect cultural or historic resources. ADC PDM activities are not undertakings that could have detrimental impacts on districts, sites, highways, structures or objects listed in or eligible for listing in the National Register of Historic Places nor will they cause a loss or destruction of significant scientific, cultural, or historical resources, including interference with American Indian cultural resources.

11. An evaluation of the proposed action and its effects on T&E species determined that no significant adverse effects on such species would occur. The proposed action will comply with the Endangered Species Act of 1973, as amended. Consultation with the U.S. Fish and Wildlife Service has taken place and mitigations developed as part of that process, or mitigations that may be established as the result of further consultations, will be implemented to avoid jeopardy or significant adverse impacts.

12. This action would be in compliance with Federal, State and local laws or requirements for predator damage management and environmental protection.

/s/

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Michael Worthen Date
Regional Director, USDA-APHIS-ADC